

Work Order ID 60943

Wednesday, July 28, 2010 1:11:19 PM



Page 1

Item ID:	D6104-003	Accept		Setup	Start	
Revision ID:					Stop	
Item Name:	Round Billet, 17-4					
Start Date:	7/28/2010	Start Qty: 6.00		Cust Item ID:		
Required Date:	8/6/2010	Req'd Qty: 6.00		Customer:		
Reference:						

Approvals:	Process Plan:		Date:	10-7-28	Tooling:		Date:		Run	Start	
	QC:		Date:		SPC (Y/N):		Date:			Stop	

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D6104	Rev B								

100

0.00



Purchasing

PURCHASING

Memo

0.00

Purchasing

Issue P/O: 12345 ☐ a) Description: S.S round billet ☐ b) Ø3.25" x 3.80" long ☐ c) Tolerance on all dimensions are +0.030"/-0.000" ☐ d) Material: 17-4PH Stainless steel (Ams 5643 or Aisi 630) ☐ e) One blank makes 2 parts ☐ f) Material certification required

RF 10-7-28

(u)

110

Receive & Inspect for Damage & Mat'l Certs

0.00



Packaging

Memo

0.00

Packaging

Ensure material certification is attached

10/10/10

(e)

120

QC6- Inspect dimensions to drawing

0.00



QC

Memo

0.00

Quality Control

Ensure Material certification comply to Dwg D6104

8.10.10

(t6)

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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Wednesday, July 28, 2010 1:11:19 PM

Page 2

Item ID: D6104-003

Accept

Revision ID:

Item Name: Round Billet, 17-4

Start Date: 7/28/2010 Start Qty: 6.00

Required Date: 8/6/2010 Req'd Qty: 6.00

Reference:

Cust Item ID:

Customer:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool # Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

130



Packaging

Packaging

Identify as per dwg & Stock Location: CNC

0.00

Memo

0.00

SA 10/08/11

140



QC

Quality Control

QC21- Final Inspection - Work Order Release

0.00

Memo

0.00

10/08/11
MF 10-8-11

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

Wednesday, July 28, 2010 1:11:23 PM

Page 1

Work Order ID: 60943



Parent Item: D6104-003



Parent Item Name: Round Billet, 17-4



Start Date: 7/28/2010

Required Date: 8/6/2010

Start Qty: 6.00

Required Qty: 6.00

Comments: IPP B: ☐01.09.04 ☐Revised Step 2 SM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D6104-003P  17-4 SS Roundbar 3.25"OD		Purchased	No			110	Each	0.0000	1 	6		<i>Pick 8/3</i>	

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

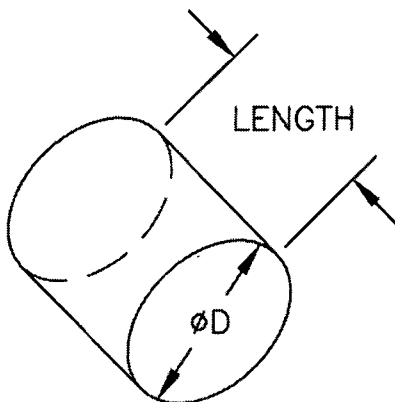
NOTE: Date & initial all entries



DESIGN <i>FF</i>	DRAWN BY <i>[Signature]</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED <i>[Signature]</i>	APPROVED <i>[Signature]</i>	DRAWING NO. D6104	Rev. B SHEET 1 OF 1
DATE 02.11.25		TITLE ROUND BILLET, 17-4	SCALE NTS
A	01.04.10	NEW ISSUE	
B	02.11.25	CLARIFY ALLOY SPEC ADDED D6104-009/-011 REDUCE LENGTH OF BILLETS	

RELEASED
02.11.29 *[Signature]*

SPECIFICATION CONTROL DRAWING



SHOW COPY
REVISION
ENGINEER
UNCONTROLLED
SUBJECT TO ALL NOTICES
WITHIN SPEC
WORK ORDER
NO. *60943*
PRO-725

MATERIAL: 17-4 PH SS (AMS 5643 OR AISI 630) MIN. UTS = 170 KSI (38 HRC)

PURCHASE MATERIAL ACCORDING TO THE FOLLOWING TABLE. SPECIFY ALLOY, DIAMETER x LENGTH (+0.030/-0.000) AS SHOWN.

TOLERANCE ON ALL DIMENSIONS IS +0.030/-0.000.

ALL DIMENSIONS ARE IN INCHES

Part No.	Alloy	D (Diameter)	Length
D6104-001	17-4 PH STAINLESS STEEL	Ø3.00	3.80
D6104-003	17-4 PH STAINLESS STEEL	Ø3.25	3.80
D6104-005	17-4 PH STAINLESS STEEL	Ø4.00	5.10
D6104-007	17-4 PH STAINLESS STEEL	Ø4.50	5.10
D6104-009	17-4 PH STAINLESS STEEL	Ø5.25	4.10
D6104-011	17-4 PH STAINLESS STEEL	Ø6.50	4.10

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W/O:			WORK ORDER CHANGES					
DATE	STEP		PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID PO12345

Purchase Order Date 7/28/2010

PO Print Date 7/28/2010

Page Number 1 of 2

Order From :

VC-MET001

METAUX CASTLE
A.M. CASTLE & CO. (CANADA) INC. - BOX B9204 PO BOX 9100
TORONTO, ON M4Y 3A5
CA

Contact Name

Vendor Phone

Vendor Fax

Vendor Account Nbr

514 694 9575

514 695 3281

Buyer

Requisition Nbr

Tax Resale Nbr

Terms

Currency

FOB

Brigitte Golden

10127-2607

Net 30

CAD

Ship To :

DART AEROSPACE LTD 1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

Line Nbr	Reference Revision ID Vendor Part Number	Description/ Mfg ID	Req Date/ Taxable	Req Qty/ Unit of Measure	Ship Method	Unit Price	Extended Price
1	D6102-013P	6061-T6 7.0x6.5x2.0	7/30/2010 Yes	12.00 Each	Yours ppd	\$28.8500	\$346.20

Special Inst:

Aluminum Billet, 7.000" x 6.500" x 2.000"
thick. Tolerance on all dimensions is
+0.06/0.00. Grain direction along 6.500"
length.

Mat: 6061-T6/T6511-(QQ-A-250/11-or QQ-
A-200/8)
DWG: D6102 Rev: D

2

D6104-003P

17-4 SS Roundbar 3.25"OD

7/30/2010
Yes

6.00
Each

Yours ppd

\$0.0000

\$0.00

Special Inst:

Description: S.S round billet: 03.25" x 3.80"
long.
Tolerance on all dimensions are + 0.030"/-
0.000".

Mat: 17-4PH Stainless Steel (Ams 5643 or
Aisi 630.
~~One Blank makes 2 parts~~
DWG: D6104 Rev: B

No substitution or deviation without
consent.
Certificate of Conformity or Material
Certification required when applicable

Change Nbr:

1

Change Date: 7/28/2010

**Castle Metals®**

A. M. Castle & Co.

BORDEREAU DE MARCHANDISES

Page 1 of 1

No de Formulaire d'Emballage / Shipment No:432966

Expédié de / Ship From: Castle Metals MONTREAL 835-SELKIRK AVENUE POINTE CLAIRE, QUEBEC H9R 3S2		Vendu à / Sold To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7		Expédié à / Ship To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7		Livré à / Deliver To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA	
Date d'expédition / Date Shipped 02-AUG-10	F.O.B. ORIGIN	Modalités de transport / Freight Terms Prepaid		Transporteur / Carrier MANITOULIN		N° du Bon de connaissance / BOL No 432966-2	

Détails d'expédition / Shipment Details	Destination finale / Final Destination Branch - MON
--	--

N° de commande / Order No 905727	N° de ligne / Line No 1	N° d'article / Item No 42470.MO	Description 3.2500.RD.17CR-4NI.STAINLESS.RT.SOL TR.COND A.132.0000-156.0000 CUT TO 3.8 IN (+ 0.30/- .0000 IN) - BAND SAW CUTTING SPECIFICATIONS: AMS-5643				
N° de bon de commande / Purchase Order No 12345		Nbre de pièces / Part Number		Qté commandée / Ordered Qty 6 PCS		Qté Facturée / Invoice Qty 6 PCS	
Détails / Details							
N° de livraison / Delivery No : 37508303	Usine / Mill	No de coulée / Heat Number 246747	Code méc / Mech Id	Pièces / PCS 6	Largeur (Pouce) / Width (IN)	Longueur (Pouce) / Length (IN)	Qté expédiée / Shipped Qty (LBS) 53.6

Ces marchandises/technologies sont sujettes aux règlements de l'Export Administration et du département d'état des États-Unis. Si elles ont été/sont exportées, elles doivent se conformer à ces règlements. Toute modification du contrat de transport contraire aux lois des États-Unis est interdite.

These commodities/technologies are subject to US Export Administration & US State Dept. Regulations and, if intended for export, were/are exported thereunder. Diversion contrary to US Law is Prohibited.

Nous certifions par la présente que le matériel couvert par cette certification est conforme aux spécifications susmentionnées et aux exigences applicables pour le matériel, y compris toute spécification faisant partie de la description. Les rapports d'essai sont archivés pour fins de consultation. Toute requête concernant du matériel défectueux sera rejetée à moins qu'elle ne soit faite par écrit à A. M. Castle & Co. dans les 60 jours suivant la livraison. Le matériel coupé sur mesure ou coupé par le client ne peut être retourné pour crédit.

We hereby certify the material covered by this certification conforms in accordance with the above specifications and has been found to meet the applicable requirements for the material, including any specifications forming a part of the description. Test reports are on file subject to examination. All claims for defective material are waived unless made in writing to A.M. Castle & Co. within 60 days of the shipment. Material cut to the correct size, or material cut by the customer cannot be returned for credit.

Ce matériel a été reçu et inspecté par
Reviewed by Authorized Castle Metals Representative:

Date:

**VALBRUNA****SLATER STAINLESS, INC.**2400 Taylor Street West, P.O. Box 630
Fort Wayne, Indiana USA 46801
Phone: 260-434-2892 Fax: 260-434-2905**Product Certification Report****Report Number: 4396350**

Certified on Sep 16, 2008 Page 1 of 2

Order I.D. 0801409 001		Order Date 5/19/08		Commodity Code 42470	
Dim 1 3.2500	Dim 2 .0000	Dim 3 .0000	Heat I.D. 246747	Customer I.D. 001117	Customer Purchase Order 10-39981
Product Shape Rounds			Product Surface HR & Rough Turned		Customer Grade 17-4
Length (Inches) 132.000 Min. 156.000 Max.			Bill of Lading # 408533	Weight	

Ship ToCASTLE METALS
26800 MILES ROAD
BEDFORD HEIGHTS, OH 44146**Sold To**VALBRUNA STAINLESS, INC.
2400 TAYLOR STREET WEST
FORT WAYNE, IN 46802

S 010210

Lifts: 0027 0028

AISI 630

UNS S17400

AMS 2303E

CONDITION A

ASTMA 564-04

AMS 5643R

3174-10 Rev 4 DTD 08/27/03

ASMESA 564 01 ED 2002 ADD

CHEMICAL ANALYSIS

C	Mn	P	S	Si	Cr	Ni	Mo	Cu	N	Cb	Ta	Cb+Ta
.034	.64	.022	.023	.39	15.70	4.67	.18	3.32	.03	.21	.001	.211

HB

353

**TENSILE PROPERTIES
CAPABILITY**

HB	TS (PSI)	2%YS (PSI)	%EL(4d)	%RA	AGE(F)
441	203000	176800	16.4	52.9	900

MAGNETIC PARTICLE TEST

FREQ SEV

AVG 13 11

PRODUCTION HEAT TREATMENT

SOL-ANN(F)	SOL-ANN(HR)	QUENCH
1900	9.00	Air

MACRO ASTM E340/E381

MACRO

OK

OK

OK

PERCENT FERRITE

% FERRITE

AVG 1.0

Reduction ratio 5 To 1 Min.

Electric Furnace melted; AOD refined.

Ultrasonic test OK.

Chemical testing performed to one or several of the following ASTM methods: E415, E572, E1019, E1085, E1086.

No mercury or low melting alloy contamination. No weld repair.

Material melted in Italy, manufactured in the United States.

Material conforms to listed specifications.

CASTLE METALS CORP.

DATE RCVD 9/18/08

IAC N247

APPROVED BY (Signature)

Results relate only to the items tested. Certification shall not be reproduced except in full, without written approval of Valbruna Stainless Inc. The recording of false, fictitious, or fraudulent statements on this document may be punished as a felony under federal statutes, including Federal law, Title 18, Chapter 47. Consult material safety data sheet (MSDS) for hazard info. I hereby certify that the reported figures are correct as contained in the records of the corporation.

Manager Laboratory Services

Dennis Hackett

T-243 P034/086 F-672

09-18-15:21 FROM-

**VALBRUNA**

SLATER STAINLESS, INC.
2400 Taylor Street West, P.O. Box 630
Fort Wayne, Indiana USA 46801
Phone: 260-434-2602 Fax: 260-434-2905

Product Certification Report**Report Number: 4396350**

Certified on Sep 16, 2008 Page 2 of 2

Order I.D. 0801409 001		Order Date 5/19/08		Commodity Code 42470	
Dim 1 3.2500	Dim 2 .0000	Dim 3 .0000	Heat I.D. 246747	Customer I.D. 001117	Customer Purchase Order 10-39981
Product Shape Rounds		Product Surface HR & Rough Turned			Customer Grade 17-4
Length (Inches) 132.000 Min. 156.000 Max.			Bill of Lading # 408533	Weight	

**Ship
To**

CASTLE METALS
26800 MILES ROAD
BEDFORD HEIGHTS, OH 44146

**Sold
To**

VALBRUNA STAINLESS, INC.
2400 TAYLOR STREET WEST
FORT WAYNE, IN 46802

Quality system is compliant with ISO 9001:2000. Produced in accordance with EN 10204 3.1B.

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Manager Laboratory Services

Dennis Hackett